

What Is Claimed:

1. A method of associating a resource with a geographic location to which the resource relates, the method comprising:  
  
determining location information associated with users that access the resource;  
  
and  
  
performing a cluster analysis based on the location information.
2. The method of claim 1, wherein the resource is a web advertisement.
3. The method of claim 1, wherein the resource is a web site.
4. The method of claim 1, wherein the location information includes network addresses.
5. The method of claim 4, further comprising:  
  
mapping the network addresses to geographical coordinate information.
6. A method of providing documents comprising:  
  
collecting location information associated with first users that access a resource;  
  
performing an analysis on the collected location information to determine the geographic relevance of the resource;  
  
determining second location information associated with a second user; and

determining whether to provide a document associated with the resource to the second user based, at least in part, on a matching of the geographic relevance of the resource to the second location information.

7. The method of claim 6, wherein the collecting location information further comprises collecting location information from multiple first users, and wherein performing an analysis further comprises performing a cluster analysis.

8. The method of claim 6, wherein the resource is a web document.

9. The method of claim 8, wherein the document associated with the resource is an advertisement.

10. The method of claim 6, wherein the document associated with the resource is the same as the resource.

11. The method of claim 6, wherein the location information includes network addresses of the first users.

12. The method of claim 11, further comprising:  
mapping the network addresses to two-dimensional coordinate information.

13. The method of claim 6, wherein collecting the location information associated with the first users includes collecting at least one of location information stored in cookies, location information derived from search terms entered by the user, and location information derived from browsing patterns.

14. A method of associating a resource with a geographic location to which the resource relates, the method comprising:  
determining a plurality of locations associated with users that access the resource;  
and  
analyzing the determined locations to determine geographical relevance.

15. The method of claim 14, wherein the resource is a web advertisement.

16. The method of claim 14, wherein the plurality of locations are network addresses of the users.

17. The method of claim 16, further comprising:  
mapping the plurality of network addresses to two-dimensional coordinate information, wherein analyzing the determined locations includes performing a cluster analysis based on the two-dimensional coordinate information.

18. The method of claim 14, wherein determining the plurality of locations associated with users includes at least one of using location information stored in cookies,

using account information of the users, using search terms entered by the user, and using browsing patterns of the users.

19. The method of claim 14, wherein determining the plurality of locations associated with users includes collecting location information using an application running locally to the users.

20. The method of claim 19, wherein the applications include at least one of a browser tool bar, a browser plug-in, and a browser.

21. The method of claim 19, wherein the location information includes at least one of IP addresses of the users and network addresses of resources accessed by the users.

22. The method of claim 17, wherein mapping the plurality of network addresses to location information includes:

associating the network addresses with a two-dimensional point defined by latitude and longitude values estimated from the network addresses.

23. The method of claim 17, wherein mapping the plurality of network addresses to location information includes:

mapping the network addresses to cities that are estimated to be closest to physical locations associated with the network addresses, and

mapping the cities to a two-dimensional point defined by latitude and longitude values.

24. The method of claim 17, wherein performing a cluster analysis further includes:

determining whether the location information tends to form one or more clusters.

25. The method of claim 17, wherein performing a cluster analysis further includes:

associating geographic location information with the resource based on the one or more clusters.

26. The method of claim 25, further comprising:

determining a probability that a location associated with a particular user is within the geographic location associated with the web resource based on a statistical model applied to the one or more clusters.

27. The method of claim 17, wherein performing a cluster analysis of the plurality of network addresses further includes:

normalizing the location information based on populations associated with locations in the location information.

28. The method of claim 16, wherein the plurality of network addresses are Internet Protocol (IP) addresses.

29. The method of claim 28, wherein dynamic IP addresses are given less weight in the cluster analysis than static IP address.

30. A search engine comprising:

a document selector component configured to locate a set of documents relevant to a search query, the document selector component basing the determination of relevancy at least in part on geographic relevance information associated with documents in the set of documents; and

a geographic relevance component configured to generate the geographic relevance information associated with the documents in the set of documents by gathering a plurality of network addresses of users that access the documents in the set of documents, mapping the plurality of network addresses to location data points, and performing a cluster analysis on the location data points.

31. The search engine of claim 30, wherein the geographic relevance component performs the cluster analysis on the location data points based on a determination of whether the location data points tend to form one or more clusters. .

32. The search engine of claim 31, wherein the geographic relevance component additionally determines a probability that a location associated with a user that submitted the search query is geographically relevant to the documents in the set of documents based on a statistical model applied to the one or more clusters.

33. The search engine of claim 30, wherein, when performing the cluster analysis on the location data points, the geographic relevance component is further configured to normalize the location data points.

34. The search engine of claim 33, wherein the normalizing is based at least in part on population associated with the location data points.

35. A method for determining the probability that a user submitting a search query is geographically relevant to a network resource, the method comprising:

- determining a geographic location associated with the user;
- acquiring geographic relevance information for the network resource, the geographic relevance information including information that defines at least one cluster associated with the network resource, the information defining the at least one cluster including at least a center point of the cluster and a measure of dispersion of the cluster;
- and
- determining the probability that the user is geographically relevant to the network resource based on a statistical model applied to the at least one cluster.

36. The method of claim 35, wherein the determination of geographic location associated with the user is based on terms in the search query.

37. The method of claim 35, wherein the statistical model is based on a Gaussian model.

38. The method of claim 35, wherein acquiring the geographic relevance information for the network resource includes:

gathering a plurality of network addresses of users that access the network resource;

mapping the plurality of network addresses to location data points; and

performing a cluster analysis on the location data points to generate the geographic relevance information.

39. The method of claim 35, wherein the determination of geographic relevance of the user is based on web access patterns of the user.

40. The method of claim 38, wherein mapping the plurality of network addresses to location data points includes:

associating the network addresses with two-dimensional points defined by latitude and longitude values estimated from the network address.



41. The method of claim 38, wherein mapping the plurality of network addresses to location data points further includes:

mapping the network addresses to cities that are estimated to be close to physical locations associated with the network addresses; and

mapping the cities to two-dimensional points defined by latitude and longitude values.

42. The method of claim 38, wherein performing a cluster analysis further includes:

determining whether the location data points tend to form one or more clusters.

43. The method of claim 42, wherein performing a cluster analysis further includes:

associating geographic location information with the network resource based on the one or more clusters.

44. The method of claim 38, wherein the plurality of network addresses are Internet Protocol (IP) addresses.

45. A computer-readable medium for associating a network resource with a geographic location to which the network resource relates, the computer readable medium containing programming instructions that when executed by a processor cause the processor to:

gather a plurality of network addresses of users that access the network resource;  
map the plurality of network addresses to data points that correspond to  
geographic locations;  
perform a cluster analysis on the data points; and  
determine a geographic location for the network resource based on the cluster  
analysis.

46. The computer-readable medium of claim 45, wherein the data points are  
each defined by latitude and longitude values.

47. A device for associating a network resource with a geographic location to  
which the network resource relates, the device comprising:

means for gathering a plurality of network addresses of users that access the  
network resource;

means for mapping the plurality of network addresses to data points that  
correspond to geographic locations; and

means for analyzing the plurality of data points to determine a geographic  
relevance of the web resource.